

### REMARKS

Replacement sheets for FIGs. 1, 2, 3 and 4 are submitted, and the respective figures are now designated "Prior Art."

Claim 30 is added to claim the invention in alternative language, and various others of the claims are amended as explained below. Claim 26 is canceled without prejudice. The amendments are made for the purpose of expediting prosecution and not for patentability, and the claim cancellations are made without prejudice.

Applicants reserve the right to pursue subject matter of the original claims (prior to amendment) and subject matter of the canceled claims in subsequent prosecution.

New Claim 30 is added to claim the invention in alternative language. Claim 30 is thought to be patentable over the cited prior art because the prior art does not appear to suggest the combination of limitations including a differential amplifier for receiving and amplifying a first input signal; first and second current sources, each coupled to the differential amplifier, the first and second current sources altering the amplification of the first input signal; a load for providing a load impedance; and a dual differential switching stage, coupled to the differential amplifier and to the load, the dual differential switching stage mixing a second input signal with the altered and amplified first input signal, whereby an output signal is produced at the load.

Claims 1-25 and 27-30 remain for consideration and are thought to be allowable over the cited art.

The rejection of claims 1, 4, 7, 10, 12-13, 16, 18 and 25 under 35 USC §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the applicant regards as the invention is respectfully traversed. The rejection is thought to be improper because the claims as submitted are thought to be reasonably clear to those skilled in the art. However, claims 1, 4, 10, 12-13, 16, 18, 21 and 25 are amended to correct typographical errors. The amendments are not thought to be necessary for patentability because those skilled in the art would have recognized the typographical errors.

No amendment to claim 7 is thought to be needed because one of ordinary skill in the art would recognize that the claimed type of mixer has a single supply voltage.

Thus, the limitation “the supply voltage” is not indefinite. However, Claim 7 is amended for purposes of expediting prosecution.

The First Office Action fails to show that Claims 1, 3-8, 11, 14, 17-18, 20-26 and 28 are anticipated under 35 USC §102(b) by “Balteanu” (U.S. Patent No. 6,438,365 to Balteanu et al.). The rejection is respectfully traversed because the First Office Action fails to show that all the limitations are taught by Balteanu.

Claim 1 includes, for example, limitations of a current modifier, coupled to the differential amplifier, the current modifier altering current in the differential amplifier to adjust current through the load. Independent claim 18 includes similar limitations. These limitations are not shown to be taught by Balteanu.

The First Office Action alleges that Balteanu’s transistors Q7-Q10 (FIG. 3) correspond to the claimed current modifier and Balteanu’s resistor network Rm1, Rc1, Rc2, and Rm2 corresponds to the claimed load. However, the current through Balteanu’s load is not adjusted as claimed. Balteanu’s transistors Q7-Q10 split each of the currents Ic1 and Ic2 of the differential amplifier (Q5, Q6) into two equal component currents; however, all the component currents are coupled to the load (Rm1, Rc1, Rc2, Rm2) either directly or via the mixer (Q1-Q4; col. 3 lines 23-36). Thus, the current through the load (Rm1, Rc1, Rc2, Rm2) is not adjusted by transistors Q7-Q10.

Claims 3-8, 11, 14, 17, and 20-25, which depend from either claim 1 or claim 18, include limitations that further refine the claimed current modifier. Therefore, these claims are not shown to be anticipated by Balteanu.

Claim 26 is canceled and the rejection is now moot.

Claim 28 is in means plus function format and includes limitations of means for injecting current into the means for amplifying to reduce current through the means for receiving the amplified input signal and for providing a balanced differential output signal by supplementing current in the means for amplifying. The First Office Action fails to show that the functions and corresponding structure are taught by Balteanu.

The First Office Action does not show that Balteanu suggests the functions of Claim 28 as explained above for Claim 1. Furthermore, the First Office Action does not consider the structure disclosed in the specification in alleging that the claims are unpatentable. (“the PTO may not disregard the structure disclosed in the specification

corresponding to such language when rendering a patentability determination.” *In re Donaldson Co.*, 16 F.3d 1189, 29 USPQ2d 1845 (Fed. Cir. 1994) MPEP 2181). In one embodiment, for example, two current sources are used to inject current to the means for amplifying. Balteanu does not suggest use of two current sources. Therefore, claim 28 is not shown to be anticipated by Balteanu. The rejection of Claims 1, 3-8, 11, 14, 17-18, 20-26 and 28 as being anticipated by Balteanu should be withdrawn because Balteanu is not shown to teach all the limitations of the claims.

The First Office Action fails to establish that Claims 2, 9-10, 12-13, 15-16, 19, 27, and 29 are unpatentable under 35 USC §103(a) over Balteanu as applied to Claims 1 and 8 above. The rejection is respectfully traversed because the First Office Action fails to show that all the limitations are suggested by Balteanu, fails to provide a proper motivation for modifying the teachings of Balteanu, and fails to show that the modification could be made with a reasonable likelihood of success.

Claims 2, 9-10, 12-13, 15-16 and 19 include limitations that further refine the limitations of the current modifier as discussed above in regards to claim 1. Furthermore, the alleged motivations for making the modifications are conclusions that are unsupported by evidence. Therefore, the alleged modifications to Balteanu are not suggested by Balteanu's teachings.

The alleged modification to Balteanu to achieve Claim 27 is improper because the modification would frustrate an objective of Balteanu. Balteanu's mixer is described as “providing better linearity” (Abstract). However, if the alleged modification is made to Balteanu, the linearity would worsen. Balteanu splits current from the differential amplifier (Q5, Q6 of Figure 3) into two equal components to provide feedback to the differential amplifier and thereby improve linearity (col. 3 lines 23-50). Modifying Balteanu by switching the polarity of the current, as suggested by the First Office Action, would switch the polarity of the feedback, and a switched polarity of feedback would worsen linearity instead of improving linearity. Thus, the proposed modification would frustrate a purpose of Balteanu, and the alleged modification is improper.

Claim 29 is in means-plus-function format and includes limitations of means for sinking current from the means for amplifying to alter current through the means for


receiving the amplified input signal and for providing a balanced differential output signal. The function of sinking current is not shown to be suggested by Balteanu. Furthermore, example corresponding structure in the specification (in one embodiment, for example, the two current sources mentioned in regards to claim 28) is neither considered nor shown to be suggested by Balteanu. Therefore, Claim 29 is not shown to be suggested by Balteanu.

The rejection of Claims 2, 9-10, 12-13, 15-16, 19, 27, and 29 over Balteanu should be withdrawn because the First Office Action fails to show all the limitations are suggested by Balteanu, fails to provide a proper motivation for modifying Balteanu, and fails to show that the combination could be made with a reasonable likelihood of success.

#### CONCLUSION

Reconsideration and a notice of allowance are respectfully requested in view of the Amendments and Remarks presented above. If the Examiner has any questions or concerns, a telephone call to the undersigned is invited.

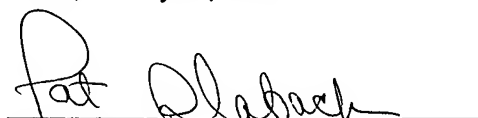
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I hereby certify that this correspondence is being deposited with the United States Postal Service as first-class mail in an envelope addressed to: Commissioner for Patent, P.O. Box 1450, Alexandria, Virginia 22313-1450, on July 25, 2005

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